adult, that it should be true of the fœtus, whose circulation is different. Besides, it has not been asserted by any one, that the pulse of the fœtus is slow or quick, but merely that the sounds of the heart are more numerous than in the adult. This matter, however, must be decided by future investigations.

It may appear surprising, how the sounds of the fœtal heart can be transmitted through the liquor amnii, and through the parietes of the uterus and abdomen in the mother, so as to become distinctly audible; but the following simple experiment will serve to explain it. Suspend a watch in a vessel containing many gallons of water, and on applying your ear to any part of the circumference of the vessel, you will hear the beats more distinctly than in the air. The same thing occurs when several folds of cloth are passed round the vessel. Dr. M'Donnell thought this was an argument in favour of the possibility of hearing the sounds of the auricles in the fœtal heart, though they could not be heard in that of the adult.

When the pulse is felt in the funis of a new born child, its strength and fulness appears to be equal to that of the larger arteries in the adult? Whence arises this impulse? While the ductus arteriosus is still open, the blood of both ventricles is driven at one stroke into the descending aorta; whereas in the adult, the blood passing through the descending aorta, merely receives the impulse of the left ventricle. Before respiration takes place, the vessels of the cord pulsate with great force, but as soon as the child breathes, they shrink rapidly and become pale and flat. Now all this occurs when you raise the fœtus and the cord above the level of the placenta. This happens whether the placenta be attached or not, whether the cord pulsates or not, and finally, after the arteries have been tied leaving the vein free.

Dr. M'Donnell concluded his paper with an account of several experiments made in descending twenty-six feet in a diving-bell; the result being that no change whatsoever was observed in the number of the pulse or breathing under all the variable degrees of pressure; but that the carbonization upon every volume of the expired air decreased and increased accordingly as he descended or ascended. Hence he infers that man and all such animals can live, if supplied with pure air, under all degrees of increased pressure, and also at all heights, until the quantity of oxygen in the atmosphere becomes incapable of decarbonating their blood.—*Ibid.*

9. *Gastric Juice.*—The experiments of Dr. Prout, and of Tiedemann and Gmelin in reference to the gastric juice, are confirmed by those of Braconnot, and prove that there is no peculiar substance to which this appellation should be applied, but that the remarkable peculiarity of the stomach is the property which it possesses of secreting a great quantity of muriatic acid. The gastric juice examined by Braconnot was obtained from a dog. He found it to contain.

1. Free muriatic acid in great abundance. 2. Muriate of ammonia. 3. Chloride of sodium in very great quantity. 4. Chloride of calcium. 5. A trace of chloride of potassium. 6. Chloride of iron. 7. Chloride of magnesium. 8. Colourless oil with an acid taste. 9. Animal matter soluble in water and alcohol, in very considerable quantity. 10. Animal matter soluble in weak acids. 11. Animal matter soluble in water, and insoluble in alcohol (salivary matter of Gmelin.) 12. Mucus. 13. Phosphate of lime. He found no trace of lactic acid.—*Records of General Science, Jan.* 1836, from *Annales de Chimie,* LIX.

PATHOLOGY.

10. *On the condition of the Vital Powers in Arteries leading to the inflamed parts.*—Dr. Alison communicated to the Medical section of the British Association, at the late meeting in Dublin, some experiments on this subject, in continuation of those read to the section in 1834.—(See preceding vol. of this Journal, p. 183.) He detailed the result of two examinations of the arteries of limbs of horses killed on account of injury and inflammation of single joints, in one case of three weeks', in the other of eight days' standing. The power of contracting on a distending force, and expelling their contents, was tried in the arteries both of the inflamed

and the sound limbs, by the same contrivance as was used by Poiseuille to compare the contractile power of living and dead arteries; *i. e.* by using bent tubes and stopcocks in such a way as to distend a given portion of artery (first of the one limb and then of the other,) by water pressed into it by a firm weight of mercury, and then allowing the artery to expel the distending water, and getting a measure of the force which it exerts in doing so, by the rise of the level of water in a tube communicating with the artery. The result was in both cases in accordance with the observations formerly made, that the artery of the inflamed limb exerted *less* power of contracting on, and expelling its contents, than that of the sound limb. The difference was as 10 to 16 in one case, and as 125 to 175 in the other, which was the more satisfactory of the two, as the experiment was made more immediately after death.

It appeared also, on careful comparative examination, that the contraction of the emptied arteries at the moment of death (which is the measure adopted by Parry of the vital power of arteries) was less in the diseased than in the sound limbs; the difference between the contracted state immediately after death, and the subsequently dilated and dead state of the artery (28 hours after death,) being ¼th in the case of the diseased limb, and ⅓d in that of the sound limb.

It appears, therefore, that in all arteries of such size as to admit of measurement, and which supply inflamed parts, the only vital powers of contraction, which experiments authorize our ascribing to the coats of these vessels, is *diminished* during inflammation; and it may be safely added, that no other change but this diminution or relaxation of contractile power has ever been perceived, either in them, or in the smaller vessels which come under the observation of the microscope, at least during the greater part, and in the highest intensity, of inflammation.

But if it be inferred from these facts that inflammation consists merely in relaxation of vessels, giving an increased effect to the impulse of blood from the heart to the part affected, several facts may be stated to show that the explanation thus afforded is quite inadequate. The change which takes place on the movement of the blood flowing to an inflamed part is, diminution of velocity or absolute stagnation in the vessels most affected, combined with increased velocity and increased transmission in all the neighbouring vessels; and it seems impossible to ascribe both these opposite effects to the same cause, viz: a simple relaxation or loss of power in the vessels concerned. Neither can the characteristic effusions consequent on inflammation, and by which alone it is uniformly distinguishable from simple congestion or serous effusion, (and particularly the increased quantity and increased aggregation of the fibrin that exudes from inflamed vessels,) be explained by this change of the action of the vessels. And further, the local causes which excite inflammation are not only such as in other instances produce an increase, instead of a diminution, of vital power, but they are such as have been ascertained to produce, when they are made to act on minute portions of individual vessels only, contraction instead of relaxation; as has appeared in the experiments of Verschuir, Thomson, Hastings, Wedmeyer, and others.

The proper inference, therefore, appears to be, that the idea of an *increased action of vessels* in an inflamed part is indeed a delusion; but that there is a really *increased action within the vessels* of the part, *i. e.* an increased exertion of powers, by which the motion of the blood is affected, but the action of which is independent of the contractions of the living solids, and the effect of which is to cause distention and relaxation of the vessels, within which they act with unusual energy.—*Lond. & Ed. Philos. Mag.*, Dec. 1835.

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11. *On the immediate cause of Death by Asphyxia.*—Dr. Alison communicated at the same time some experiments on death by asphyxia, the immediate object of which was to ascertain whether the acceleration of the flowing blood through the lungs,—which is undoubtedly produced by respiration, and the failure of which appears, from the experiments of Williams of Liverpool, and of Kay of Manchester, to be the immediate cause of death by asphyxia, can be ascribed, as Haller and some very recent authors have supposed, to the merely mechanical influence of the alternate expansion and contraction of the lungs by the respiratory movements.

That this is not the fact might be concluded from the fatal asphyxia produced by breathing azote or other gases, not poisonous, but not containing oxygen; in which case it had been observed by Broughton and others, that the stagnation of blood in the lungs, and the distention of the right side of the heart, take place equally as when the respiratory movements are suspended. But to this observation it might be objected, that the animals on which experiment had been made had been allowed to remain in the azote until they became insensible, and their respiration of course ceased, and had not been examined until some minutes after their apparent death, and it might be said, that the right side of the heart had become congested only after the acts of respiration had ceased, and in consequence of their cessation.

In order to avoid this source of fallacy, several rabbits were confined in azote, only until their breathing became laboured, the respirations generally less frequent, but much longer and fuller than natural. They were then taken out and instantly struck on the head with such force as to crush the brain and cerebellum, and arrest the circulation as instantaneously as possible. This was always attended with violent and general convulsion, but with no attempt at respiration, sensation being apparently instantaneously suppressed. When the body was opened immediately after the convulsion had subsided, the right side of the heart was always found distended with blood, and palpitating feebly; the left side at rest and comparatively empty: the quantity of blood obtained by puncturing and pressing the right side and pulmonary artery was from 5 to 10 times as much as could be obtained from the left side and aorta. When a rabbit previously breathing naturally was killed in the same manner, the quantity of blood on the right side of the heart (apparently accumulating there during the convulsions) was found to be greater than on the left; but the difference was decidedly less than when it had been breathing azote; and in one of these comparative trials the blood in the left side was found to be sufficient to keep up a feeble palpitation in that side, whereas in the animals that had breathed azote the left side was always found quite at rest.

It appears from these experiments that when oxygen is not admitted into the lungs in inspiration, even although the respiratory movements continued further and more forcible than usual up to the moment of death, the blood stagnates on the right side of the heart; and that the application of oxygen to the blood at the lungs, is a cause of acceleration of its movement through the lungs, independently of any influence of the mechanical movements of respiration.

If we further inquire, in what manner oxygen can give this stimulus to the flowing blood through the lungs, it appears certain that it cannot be by stimulating the small capillaries of the lungs (the only vessels to which it is directly applied) to contraction, because even if it be granted that there are vessels capable of contracting on irritation (which is very doubtful, the immediate effect of stimulating any arteries capable of taking on such action has always been observed to be a constriction permanent for some length of time, and in consequence a *retarded* flow of the fluids through them, as in the experiments of Wedmeyer.

If, again, we suppose the effect of the oxygen on the minute vessels in the lungs to be sedative or relaxing, and ascribe to a diminished action of these vessels the apparently increased efficiency of the right side of the heart when oxygen is applied, we suppose the oxygen to produce the very opposite effect to that which has always been observed when it or any other stimulus has taken effect on any individual artery.

The only mode in which it appears possible to escape from these difficulties is to suppose that the stimulus given by the oxygen to the flowing blood through the lungs, is a stimulus to that movement which is independent of any contraction of the solids containing the blood. This conclusion is in perfect accordance with the observations of Haller on the *derivation* of blood, perceptible under the microscope, towards any part where an opening is made in a vessel, and air admitted into contact with the blood, because he gives satisfactory reasons for thinking that this derivation is not owing to contraction of the vessels; it is also in accordance with observations on some of the lowest tribes of animals, and on vegetables, where *currents in fluids* are observed in connexion with the act of respiration, but no movement in solids has been detected; and even, as Dr. Alison thinks, with the observations of Purkinje and others, on currents connected with the respiratory organs in animals much higher in the scale, because although these last currents have been ascribed by most authors to vibrations of ciliæ, which are seen to accompany them in various instances, it seems very doubtful whether they can be adequately explained without supposing a "*jeu d'attraction et repulsion*" to be commenced in these instances, as well as in the respiration of the lowest tribes.—*Ib.*

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12. *Case of Aural Illusion.*—Our cotemporary, the *Jamaica Physical Journal,* (Sept. and Oct. 1835,) contains the following interesting case of aural illusion, communicated by Dr. FERGUSON. "A gentleman who had lived for many years in the West Indies, and had enjoyed good health—of robust frame, and of the sanguine temperament, came to me and asked if I had ever, in my practice, met with any individual who was tormented by a voice constantly speaking in or near to the ear. I replied, that illusions of the sense of sight were more common, and that I had often met with such, but that the ear was liable to the same derangement as the eye in this respect; and that illusions of the ear had occurred to others, though I did not recollect any case that had come under my *own* immediate notice. With a smile, but with some solemnity in his voice, he then observed that he had thought the second sight of his native land had been given to him, and that some evil was about to befall him, for that during the three preceding nights, a voice which he described to be soft like that of a female, and which he admitted he well knew, was constantly speaking to him; sometimes he said this voice addressed him in words of kindness, but generally in the language of reproach, or of the most fearful denouncing. On requesting him to repeat some of the words addressed to him by this unwelcome visiter, he told me he had been much tormented and distressed by the following conversation:—Where will you be to-morrow?—In your grave. And where then? And the same voice, in unmeasured terms, immediately condemned him to the abode of sinners. He declared he was wide awake—indeed, that he was sometimes walking through the room when he heard the voice. If my patient himself, for such I now considered him, asked a question, it would appear to be immediately answered by the same voice; or if no questions were asked, both questions and answers would proceed from one source. Thus, though the thoughts were only passing in his own mind, yet they appeared to come from without, and to reach the mind by impressions made on the ear. It is not to be wondered at, that the singular situation in which this patient was placed, should have caused him considerable doubt and alarm, and that he anticipated with horror a recurrence of the mysterious visitation when night should again seclude him from society. On enquiring if the voice was only heard at night, he said he heard it constantly—"now at this moment;" but that it became more awful and distinct in the stillness of night.

I had long known this patient. I had been in the habit of meeting him frequently, and of conversing with him, and I had never imagined even there was the slightest aberration of mind; on the contrary, I had often occasion to observe and estimate his good common sense. On speaking further with him, and observing his expression, manner, and deportment, I felt satisfied that he had not only all his wits about him, but that his mind was well formed to counteract the feeling of alarm engendered by the false perceptions of his ear, when the nature of his affection should be explained to him. I then proceeded to tell him that in some individuals, when any slight disorder took place in the brain, such as irregularity in the circulation in this organ, the mind appeared to acquire a power of impressing the retina or sense of sight with images as vivid as the realities—that I had no doubt his ear was similarly situated, and by correcting the state of the circulation in the brain, that the illusory sounds which he complained of would disappear, and that in the mean time he should keep this explanation present to his mind to ward off the dread or the belief of a supernatural interference. He appeared to be much relieved by this conversation, and he left me to resume his business. In the afternoon he took ten grains of Pilulæ Hydrargyri, and during the night he was tormented as before, and had no sleep; but in consequence of the explanation I had given him, he had been free from alarm, and had even ventured to jest with his apparition voice.

Next morning he was cupped between the shoulders, which produced some faintness and paleness of the face, which was before much flushed. All night he again took the Pilulæ Hydrargyri, combined with the compound extract of Colocynth, and a draught with twenty-five drops of the solution of the Acetate of

Morphia. He slept at night without dreams or disturbance from the voice. He was awakened by a friend going to his bedside in the morning, to whom he said he felt much better, and at that instant the voice was again heard, dooming him, as it had done before, to the abode prepared for the wicked. "You will be in hell again to-night," with a tormenting emphasis and long intonations, were the words which impressed the ear. When I called, he told me of the boast he had made to his friend, and the salutation which followed from his tormentor, and he declared that at this moment the words were constantly being repeated. I asked him frequently if the sound was any thing like the sensation, if I may so speak, of the remembrance of a sound, and he always declared it was not, but as distinct as a real sound. It was low and soft, and he imitated the voice as nearly as he could that I might have a better idea of it. As a proof of its distinctness, I may mention that when the patient was on some occasion sitting in a position which he could not at the moment change, he asked me if there was any one whispering behind him. It appeared also that the loudest sounds from without, such as the rattling of carriages immediately behind him, had no effect in diminishing its intensity. At times it appeared to whisper, but generally assumed a soft speaking tone. The "burden of the song" seemed to be the death of the patient, and his death was several times predicted to take place at a certain hour, and before he had learnt to repose his confidence in my view of his case, he had felt much uneasiness till the appointed hour was past. At other times the voice appeared to echo or repeat many times over the last words of any observation made by those conversing with the patient; or, words would appear to be uttered which plainly took their origin in some association of ideas, which he could trace from the suggesting idea to the one which became impressed as a sound on the ear. While being cupped on the back, for instance, the flame and scarifications were associated with branding, and the attendant voice appeared immediately to say, 'you are branded for hell,' with many repetitions and prolonged intonations of the last word.

"In the evening, finding that he was little relieved from these strange illusory sounds, I directed him to take ten grains of calomel at bed-time, and to purge it off with some castor oil in the morning. He followed these directions. On visiting him in the morning, he told me he had passed a horrible night, and that in addition to his usual 'spirit voice,' he had had the company of a host of imps, who were trying to drag him off the earth—that he had finally triumphed over them all, and that in consequence a most magnificent song had been set up in his praise. He smiled at his own relation; he knew 'Queen Mab' had been with him, but I could not help remarking that even in his dreams the connexion of the mind with the sense of the ear seemed to have been strangely disturbed. In the course of the day the medicine acted freely on his bowels. He said he felt lighter and better, but the voice was still at hand, and almost constantly speaking to him, though it now gave him very little concern. The calomel purge was repeated at bed-time, and he also took a draught containing twenty-five drops of the solution of the Acetate of Morphia, and the castor oil was again taken next morning. He was found to have slept well and without dreams—the medicine was acting on his bowels, and he experienced little further annoyance. The healthy state of the brain was gradually restored, and in a day or two more the affection had altogether disappeared.

"I requested the gentleman who was the subject of the above case to give me an account of his symptoms, as well as he could recollect them, previously to the commencement of my narration, and he favoured me with the following, which I have condensed into as small a space as possible:—

"He had, for upwards of a week, been leading a life of considerable dissipation, and in order to rid himself of the uneasy feelings which that life of excitement had produced, he at once refrained from every excess, and took some purgative medicine on going to bed. The effect of this change was irritability and wakefulness; he got up at midnight, lighted a candle, and attempted to read. He found this to be fruitless, for he could not fix his attention, and at this time he fancied he heard a voice talking low, or whispering in the next room; he proceeded there and found he had been mistaken. He then returned to his bed and attempted to sleep, but he still heard the voice, and the attempt was vain. He got up and sought for the source of the voice in every corner of the house, of course without avail. He became tired of this strange search, and recklessly muttering, 'be thou a spirit of health or goblin damned,' he returned to bed, but not to sleep. He heard incessant and fearful whisperings, relating generally to the misdeeds of his past life, which conscience seemed to have acquired the power of bringing up from the inmost recesses of the heart, and of communicating to the tormenting voice, that through the ear a more startling impression might be made than could result from the mere effect of memory. With the 'morning air," or rather the bustle of the day, the voice vanished for a time, or perhaps was unheeded or forgotten.

"The next night, and the next, he must have 'supped on horrors,' for he heard according to his own expression, 'fiend-like dialogues, songs of ribaldry, and all manner of threats and imprecations.' On the third night he went some distance into the mountains, expecting relief from change of scene, but he had scarcely entered his new abode, when he found the voice was with him:—'Come to your room, come to your room,' was the immediate salutation. While he was at dinner, and during the whole evening, the same words were incessantly repeated. He did at length *go to his room*, and he says, 'throughout that long dark night no description of my sufferings is possible—may they never be renewed. You know the rest. Your kind care soon relieved my mind, though it was some time before the illusion of the ear would yield an inch, and even to this day a sort of echo of it is at times perceived.'

"To this account I shall just add there was no deception of the eye except on one occasion, when he thought he saw a figure near his bed which he attempted to clutch, when it vanished. There never was any appearance of delirium—the tone of the muscles was unaffected, and the health in other respects was little impaired. The patient had been dining in company for a succession of nights, and I know he was in the habit of smoking a good many cigars. His whole appearance at the time of the attack indicated congestion of the cerebral vessels, and it will not have escaped notice, that the symptoms came on when he had commenced a course of abstinence. The stomach was disordered; and there were signs of congestion in the liver."

13. *Resuscitation from drowning.*—Very erroneous notions continue to prevail relative to the period that an individual may remain submerged, and resuscitation take place. Mr. George Wooley, one of the medical assistants of the Royal Humane Society, and whose residence in the vicinity of the receiving House in Hyde Park, has occasioned his being called upon, he says, to treat most of the cases of submersion requiring medical aid, which have occurred in the Serpentine for some years past, expresses doubts whether the Society "possesses any well authenticated record of a case of a single recovery after the body had been submerged more than five minutes."—*Lancet.*

14. *Rupture of the left ventricle of the Heart.*—A man, sixty years of age, employed in watering the streets of Paris, fell down suddenly, and instantly expired. On examination, at the Hôpital Neckar, the next day, an irregular rupture of about 3 lines, at the middle part of the posterior face of the left ventricle, was found. This ventricle was dilated, its parietes thinned and softened, but presenting no trace of ulceration. There were some points of ossification at the base of the mitral valve.—*Bulletin Gén. de Thérapeutique*, 15th Aug. 1835.

15. *Encystment of the Liver.*—In the report of the proceedings of the Anatomical Society, (*Archives Generales*, April, 1835,) it is stated that one of the most curious alterations exhibited to the Society, is the conversion of the liver into a compact yellow mass, more than thrice the ordinary volume of the organ, and throughout the substance of which, non-encysted points of a tissue that is evidently erectile were found. The encysted condition of the liver, either partial or general, is one of the most frequent changes that have been exhibited to the Society, and opportunities have presented of observing it in all its shades, from granular encystment in which each grain appears to have its own cyst, to the lobular encystment, or subdivision of the liver by fibrous bands which isolate variously sized lobules and give the whole organ the embossed appearance so usual in scirrhus. In one case you may have remarked the great thickness of

the fibrous lamellæ that thus formed the partition of the hepatic tissue. You have also seen the general encystment of the organ in a case of ascites, in which the liver turned upon itself, and, enveloped in very thick false membranes, seems to have been condensed by some powerful pressure. In all the cases of encystment, partial or general, you could not fail to remark the general or partial atrophy of the organ, as well as the alteration of the tissue.

To what is this singular tendency of the liver to encystment to be attributed? Is it owing to its anatomical texture or to the specific nature of its diseases? The fibrous septa are the result either of some new production or the consequence of an atrophy of the glandular grains, or lobules, whose disappearance would allow the fibrous lamellæ, previously separate, to join each other; or lastly, they may be a consequence of the presence of the specific membrane, to which the name of Glisson's capsule is applied.

A rare and curious alteration of the liver was presented by M. Cezalis. It had a compactness, colour, and fracture, resembling those of yellow wax.

M. Stenski exhibited a scirrhus of the liver, with dilatation of the vena portæ. —*Lond. Med. and Surg. Journ.* June, 1835.

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16. *Extraordinary case of Generation of Air in the inferior venous system.* By Mr. Raleigh. G. G. a stout youth, lately arrived from England, of about 19 years of age, was sent to Hospital on the evening of the 8th of August last, in consequence of having suffered for several days, from inflammation, on the inside of the left leg; the affected part, presented a patch of about the size of a man's hand, and extended from the middle of the calf, nearly down to the ankle, the integument, at the central point of this spot, was of a dark purple hue, from which, it assumed a red colour, gradually fading towards the circumference, which was clearly defined; the pain, which had been constant, and acute, was confined to the discoloured portion, which was exceedingly tender, and hot—the whole limb below the knee, was rather warmer than natural, but was not much swollen; pain did *not* extend up the thigh, but the glands at the groin, were somewhat enlarged, and tender,—the tongue was coated, but he was free from any general febrile symptoms. xx Leeches near the edge of the inflamed patch. Cold lotion to the leg—R. Calomel, gr. vi.—Pulv. Jalapæ Comp. ʒi.—Stat. Sumend.

9th A. M.—The redness, and pain of the leg, much abated, bowels acted on three times in the night. xij Leeches, and Lotion—P. Jalapæ Ç. ʒj. Stat.

10th.—Improving. xiij Leeches and Purgative.

11th.—The inflamed patch on the leg, has nearly entirely disappeared, the limb cool, free from pain, and the glands at the groin, although enlarged, are not tender on pressure. vi Leeches to the leg—Lotion, and Pulv. Purg.

12th.—During the night the limb again became highly inflamed, and the patch on the inside of the leg, assumed a very angry appearance, and was exquisitely painful, and tender; above the knee, the limb is quite cool, and no uneasiness is experienced along the inside of the thigh, or at the groin. His skin is hot; and pulse frequent, and rather full. Bleeding to faintness—R. Calomel, gr. vi.—P. Jalapæ Comp. ʒj. directly. Noon.—Pain continuing. viij. Leeches were applied to the leg—and a dose of Calomel administered.

4 o'clock, P. M.—During the afternoon, he has been exceedingly restless, and has now an anxious countenance, a small, rapid pulse—the respiration hurried, and abdomen distended, the spot on the leg is much less hot, or painful, the cuticle has separated from it, and small vesicles have formed round its margin, the whole limb, appears rather larger than natural, but is not tense, and is of healthy colour, and temperature; he complains of feeling very faint, and his skin is suffused with perspiration. The whole limb enveloped in a poultice. R. Calomel, gr. x.—P. Antim. gr. iv.—Ex. Colocynth C. gr. viij.—Stat. Sum.

As evening approached, the abdomen became more distended, the breathing more oppressed, the countenance livid, pulse rapid, and threaded; on the poultice being removed, the whole of the affected lower extremity, was observed to have increased in size, and become more hard, as was the case also, with the opposite limb—but their colour and temperature, continued natural; dyspnœa increased, and he died in the evening, as in a sate of suffocation.

Post-Mortem Examination, eight hours after death.—The countenance had a livid hue, and the mouth and nostrils, were filled with foam. The abdomen was much distended, and the lower extremities more bulky than natural, of pale colour, and had a firm elastic feel, but communicated no sense of crepitation to the finger on pressure being made—the purple patch on the inside of the leg remained, and the cuticle was detached from its surface, the superficial skin peeled from the whole limb with unnatural facility. On cutting into the dark spot, the cellular structure beneath the integument, partook of the discoloration, and was *at this particular situation*, emphysematous; on continuing an incision along the inside of the thigh, in the course of the saphena major vein, an eruption of air took place, from the innumerable ramifications of the veins, divided by the knife, and red froth, was observed to issue, from their minute orifices, giving rise as the knife was carried on, to a peculiar crackling noise. At the ham, the absorbent glands did not appear to have undergone any change, but at the groin, on the integuments, which were much distended, being divided, the upper, and lower chains of inguinal glands, burst forth, and when exposed by dissection, presented a cluster of swellings, as large as pigeon's eggs, of a reddish, or chesnut colour, and spongy consistence; when divided by the knife, the same crackling or popping noise was elicited, as when the knife was carried through any part of the integuments, of the two lower extremities, but in greater degree, and sounded more like the crackling of paper, when squeezed in the hand.

On the abdomen, and chest, being laid open, a most extraordinary condition of some of the viscera, was exhibited. The liver, and spleen, were so enormously enlarged, as to occupy nearly the whole front and sides, of the abdominal cavity; the intestines, which were nearly hidden, were in a perfectly healthy, and collapsed state, but on turning them aside, the kidneys were found to be at least twice their natural size. The chain of glands, passing from the groin and pelvis, in the course of the great vessels, up the lumbar spine, formed a line of tumours, varying in size, from a hazel nut to a large hen egg—and of the same red colour as those at the groin.

The pericardium seemed to fill the anterior part of the chest, the upper edges of the lobes of the lungs only, being made visible by the removal of the sternum.

I now proceeded to an external examination of the blood-vessels, to which I have as yet, avoided adverting. From the purple patch, on the inside of the left leg, I dissected the superficial veins; and found that they were all fully distended with air, having a semitransparent appearance, and exhibiting within their calibre, unconnected portions of blood. The deep seated veins, were in precisely the same distended state, and offered a great contrast in apparent size, to the arteries, over which they rose, so as completely to obscure them—following the course of the vessels from the foot, through the leg and thigh, and entering the pelvis, the iliacs, ascending vena cava, emulgent, hœpatic, splenic, together with all the minor branches, joining to form the ascending venous circulation, were distended to the utmost possible extent with air. On the brachial vein being laid bare, it appeared in the condition in which it is usually seen after death, as were also the external, and internal jugulars, and subclavian, collapsed, and containing *no air*.

The pericardium was now carefully opened, when the heart, with right ventricle, and auricle presenting, and distended to an enormous size, was found to fill the bag, there being only about ℥ss. of reddish fluid in it; the left auricle was collapsed. Unfortunately, before noticing the state of the pulmonary artery, I cut into the right auricle, on which a sudden gush of air took place, and the heart closed to its natural size; exposing the lungs, which now had a natural appearance, and admitted a view of the descending vena cava, which was in a perfectly flattened state. On removing the immensely inflated liver, and placing it on a table, air mixed with blood, issued in the shape of froth, in great quantity; and on incisions being made into the structure of this viscus, it escaped with a hissing noise. The same was the case with the spleen, and kidneys, in a diminished degree, but a division of the lumbar chain of glands, gave vent to a proportionately large quantity of air, and frothy matter.

The bulky viscera removed, attention was directed to an inspection of the internal condition of the blood-vessels. The lining membrane of the ascending venous system, throughout such branches, as from their size easily admitted of examination, was of an unusually red colour, the inner surface of the right auricle, appearing to participate in a slight degree, in this more deep than natural tinge; the lining of the posterior tibial vein, of the left leg, appeared to be of darker red colour, in the vicinity of the inflamed patch, than elsewhere; but this was *not* very decidedly marked, and the inner surface of the larger branches, and trunk of the saphena vein, was of much the same colour, as in others of the inferior venous circulation; in one or two situations, in the ascending vena cava, a very few minute vessels, were seen here and there, making a tortuous course, for about a quarter of an inch, along its inner coat, but the *general appearance*, was, as if a solution of vermilion, had been washed over the inner surface of these vessels; the colour heightened immediately on exposure to the atmosphere. The blood contained in the veins, was of a dark colour, its consistence completely broken up, unconnected, and mixed with bubbles of air.

The descending venous system, (including the veins of the head, and those of the membranes of the brain,) was in a perfectly natural state, but containing rather a large quantity of blood: no unnatural accumulation of fluid, hat taken place in the head, and the substance of the brain, seemed healthy.

The whole arterial system, was free from any detectable morbid indications.—*India Journal of Med. Science, Nov.* 1834.

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17. *Observations on Continued Fever.* The *Edinburgh Med. and Surg. Journ.* for Jan. 7, last, contains the following interesting propositions by Dr. Robert Perry, Physician to the Glasgow Fever Hospital, relative to continued fever as it occurs in the city of Glasgow Hospitals. This fever seems to resemble the spotted fever, or typhus of this country, and to be distinct from the typhus described by Louis.

"*1st*, That typhus fever is an idiopathic disease solely produced by contagion, that is, by the introduction into the system of a specific animal poison.

"*2nd*, That this specific poison is (as far as yet known) only generated in the human body during the course of this idiopathic fever.

"*3d*, That no other fever, arising either from general causes, as cold, fatigue, improper ingesta, local lesions, or marsh miasmata, is capable of generating this specific poison, or, in other words, producing contagious typhus.

"*4th*, That this contagious idiopathic typhus runs a certain course, which may be modified, but cannot be checked, and is distinguishable from all other fevers by certain symptoms, which in a greater or less degree are uniformly present during its course.

"*5th*, That the following is the usual course of the symptoms by which contagious typhus may be distinguished; viz. languor, nausea, frontal head-ache, rigours, loss of strength and appetite, followed by increase of thirst, quickened pulse, heat and dryness of skin, pain of back, or general soreness over body. The tongue becomes white at base and centre, florid at tip and edges, and on the fifth day from the first attack of head-ache, rigors, or nausea, a reddish, slightly elevated, but irregular papular* or measley eruption, is sometimes sparingly, at other times thickly scattered over the trunk and limbs, but rarely appearing on the face. As the fever advances in severity, the frontal head-ache abates, the tongue becomes dry and brown in centre, the eyes dull, heavy, and suffused, the pulse quicker, the thirst more urgent, the skin more dry and warm, and the mind disturbed. On the sixth day the eruption becomes more general and distinct, like rubeola, occasionally fading or disappearing suddenly, and becoming, as the disease advances, flattened, and of a darker or duskier hue; and when the fever is accompanied with congestion of the brain or lungs, or by thickening of the lining membrane of the bronchial tubes, it assumes that livid appearance usually called petechiæ. This eruption, when slight, frequently disappears in a few days, but more frequently is visible during the whole course of the disease.

"*6th*, That simple unmixed contagious typhus unsually continues for fourteen days from the first attack, when the febrile symptoms abate, the eye becomes clearer, the skin softer, and the mind composed, with less thirst. There is often a slight abatement of the symptoms on the tenth day, and particularly in children, at times nearly complete.

"*7th*, That when the febrile symptoms continue beyond the fifteenth day without abatement, local lesions exist, to which must be attributed the longer continuance of the febrile symptoms. The appetite frequently continues defective till the twenty-first day, when all the functions resume their healthy action.

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* The term papular does not convey a correct idea of the eruption, as it is not pointed; but I do not know a better to substitute for it.

"*8th*, That contagious typhus is often to be met with in combination with other diseases, usually of a local character, as of the lungs, the mucous membrane of the stomach and intestines, more particularly the aggregated glands of the ileum, or the membranes of the brain.

"*9th*, That by the local diseased action of the parts abovementioned, the febrile action of the system is kept up; but the character of the disease is changed, and in such cases it frequently goes on to a fatal termination, or abates upon the twenty-first day from the commencement of the disease.

"*10th*, That between the ages of seven and fifty, sixteen out of twenty are susceptible of being affected by contagious typhus, if exposed to the contagion, and not protected by having previously had the disease; but that children under five years are rarely affected with contagious typhus, and under two, may generally continue to suckle or sleep with the mother labouring under typhus, without catching the disease.

"*11th*, That contagious typhus is an exanthematous disease, and like small-pox, measles, and scarlet fever, during its course produces some change on the system, by which the individual having once undergone the disease, is (as a general rule) secured against a second attack, and may with impunity expose himself to the contagion of typhus, if he continues to reside in the same country in which he previously had the disease. In those cases which are exceptions to the general rule, the disease appears in a mild and modified from, the crisis taking place on the seventh, ninth, or eleventh day.

"*12th*, That contagious typhus never exists in combination with any of the other contagious exanthematous diseases.

"*13th*, That in every case of pure typhus, the blood undergoes, during the disease, a considerable change, becoming darker in colour, and in many cases losing the power of coagulating when drawn from the arm, and in all cases being more loose in texture; and when death ensues during the course of the disease, the blood contained in the heart and large vessels is dark and fluid.

"*14th*, That inflammation of the membranes of the brain, of the bronchia, and of the mucous membrane of the stomach and intestines, and various febrile affections arising from cold, fatigue, improper ingesta, &c. &c. more particularly disease of the aggregated glands of the ileum, and the mucous follicles, often termed *dothinenteritis* or *gastro-enteritis*, have been too often confounded by medical practitioners with typhus fever, though they are characterized by dissimilar symptoms, and require a very different mode of treatment.

"*15th*, That the congested state of the vessels of the brain, the serous fluid on its surface, and the dark fluid state of the blood, are the most common morbid appearances to be met with in *post mortem* inspections of those who have died of contagious typhus, and in many cases the only morbid appearances which are to be found; and the next in frequency is the thickening, or darker appearance of the bronchial lining membrane, and the third in order is the diseased state of the mucous membrane of the intestines, more particularly that of the aggregated glands of the ileum. The relative proportion of these states to each other vary considerably, according to the state of weather, as to heat, dryness, &c.

"*16th*, That *dothinenteritis*, or enlargement of the mucous follicles of the smaller intestines, and enlargement and ulceration of the aggregated glands of the lower third of the ileum occur in combination with contagious typhus, and are to be met with in about one in six of those who die from typhus. It also exists as a disease *per se*, and is characterized by the following symptoms;—quick irritated pulse, tongue dry and florid, more particularly at the tip, often fissured in the centre, urgent thirst, partaking of the remittent character; the face is alternately flushed and pale, particularly one or both cheeks. The disease commences frequently with diarrhœa, which lasts from three to four days, when it ceases, and the stools become for a time natural; the patient complains on pressure of pain in the epigastric, or in the right and left iliac regions; and the abdomen is slightly tumid, and has a puffy feel. As the disease advances, the patient is often seized with vomiting of a greenish fluid, which is always an unfavourable symptom. The dull suffused eye, frontal head-ache, low delirium, and decided *anorexia*, so characteristic of typhus, in nineteen cases out of twenty, are in this disease absent. This disease may exist in every degree of mildness or severity, having no regular period of termination; it may run on for two, three, or even four weeks, and terminate in gradual restoration to health, without any sensible crisis; or the patient may sink under it from exhaustion, or by hæmorrhage from the bowels, or it may end by some of the ulcers of the aggregated glands of the lower third of the ileum, penetrating the coats of their intestines, and part of their contents being effused exciting *peritonitis*, under which the patient sinks in the course of two, or, at most, three days.

"The less compressible state of the pulse, the clearness of the eyes, the flushing of the cheeks, the more florid, parched, and fissured state of the tongue, the comparative absence of the frontal head-ache, and the complete absence of the typhus eruption, sufficiently distinguish this disease from contagious typhus. To a practised eye, the colour of the face, the flushing of one or both cheeks, the clear eyes, and the irritative state of the pulse, are sufficient to distinguish this diseased state from typhus. When in conbination with typhus, all the symptoms are aggravated in severity after the fourteenth day, and become more distinctly marked. This disease is an equally frequent accompaniment of small-pox as of typhus, and presents the same morbid appearances on inspection after death. In those who have died of this disease of the mucous membrane of the intestines, the blood in the heart and large vessels presents the same appearance as in those who have died of chronic inflammatory disease, in this respect differing from its appearance in typhous cases.

"The observations on which these facts are founded were not made to establish any theory. The reports of the cases and the necroscopic inspections are made in the presence of all who chose to witness them. The facts only are stated, and all are at liberty to draw from others their own conclusions.

"These sixteen propositions, the result of careful observation in upwards of 4000 cases, and 300 necroscopic inspections, are considered as facts fully ascertained. The following are believed, on sufficient evidence, but which cannot as yet be adduced to prove them.

"*1st*, That typhous fever does not become infectious before the ninth day, and is most contagious when the patient is in the convalescent state, when cuticular desquamation usually occurs.

"*2nd*, That the contagious poison is chiefly spread by the desquamation of the cuticle during the period of convalescence.

"*3d*, That the earliest period of the disease making its appearance after exposure to contagion is eight days, more frequently fourteen, and sometimes as long as two months.

"*4th*, That in every case of genuine typhous fever, the vessels ramified upon the *pia mater* are more or less enlarged or congested, and throw out a serous fluid betwixt the convolutions of the brain and on its surface, which to a certain degree compresses the organ, and impairs its functions, and, along with the morbid state of the blood, is frequently the cause of death in this disease."

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18. *On the Diagnosis of some diseases of the thorax in which there is an accumulation of the products of disease within that cavity.*—Dr. W. Stokes communicated to the medical section of the British Association at their meeting in Dublin a paper on this subject. Without entering into the question, Dr. Stokes observed, as to whether organic diseases of the thoracic viscera are followed in all cases by some alteration in the volume of these organs, we may divide cases of thoracic disease into two classes; first, those in which there is no manifest alteration; and secondly, those in which there is a manifest alteration of volume. This division, however, is merely arbitrary. These enlargements are of two kinds; either an actual increase of volume of the parenchyma of the lungs, or a distention of its serous covering. The affections in which these occur, may be termed diseases of accumulation. Another, and more important division, is that founded on the effect of disease, in increasing or diminishing the quantity of air within the thorax. If we take empyema on the one hand, and dilatation of the air cells and pneumothorax on the other, we find that these diseases of accumulation may occur with a diminution or an increase in the quantity of contained air, so that the diagnosis depends, first, on the evidence of accumulation, and next on the physical properties of the accumulated matter. In empyema, there is accumulation and pressure from a non-elastic fluid; in emphysema and pneumothorax, from an elastic medium. In empyema we have, in addition to signs of displacement, proofs of a diminution

in the quantity of contained air; in the other affections, we have also displacement, but the quantity of air is increased.

There are, however, some very interesting points of difference, connected with the results of these diseases on the walls of the thorax. In empyema, the dilatation is most remarkable in the inferior portion of the lung; in emphysema, in the superior. A still more remarkable difference appears to be connected with the effect of these two diseases on the muscular parietes of the chest. In empyema, the muscular parietes of the chest yield, in a very obvious manner, to the effects of the disease; the intercostal spaces are obliterated, the affected side enlarged, and the diaphragm depressed. But in emphysema, the disease may be carried to a great amount, without producing these appearances. Now what is the cause of these remarkable differences? To explain this, was the object of the present communication.

It would appear that the explanation of the dilated state of the intercostal muscles was to be sought for in the circumstances attendant on pleuritic inflammation. It is a well established fact, that when muscular structures are in close connexion with inflamed tissues, their functions become impaired; and in such cases we observe, first an increase, and afterwards a diminution of innervation. In the first place, we have pain, spasm, and irritation; in the second, weakness and paralysis more or less complete. Under the latter condition, the muscular fibres lose their contractility. Dr. Stokes here referred to the researches of Dr. Abercrombie on Ileus, in which the morbid appearances were found to be confined to the dilated and not to the contracted parts. With respect to the evidences in favour of the opinion, that the displacement of the thoracic muscles was the result of paralysis, he stated, that in the first stage of pleuritis we have pain on inspiration, without protrusion of the intercostal spaces; but in the more advanced periods, pain is absent and respiration more free, but the intercostal spaces yield, and we have smoothness of the side produced. The latter circumstances corresponds with the minus degree of innervation, or paralysis. The next evidence is, that mere pressure is not sufficient to produce this. If we examine emphysema or hydrothorax, we shall find that in both there is strong pressure exercised on the muscular parietes of the thorax, as shown by the enlargement of the chest; yet the intercostal spaces are not necessarily dilated. The last point of evidence is the sudden yielding of the diaphragm, which Dr. Stokes had observed in certain cases of empyema. This yielding was as extensive as it was sudden, and was not accompanied by evidences of increase of effusion. He thought, therefore, that he was borne out in the conclusion, that the protrusion of the intercostal spaces and the depression of the diaphragm are the result of a semi-paralysed state of these organs.

This principle (if established by future investigations) might be applied to the investigation of other forms of thoracic disease. Of pleuritis he had already spoken; it would be necessary to make a few observations with respect to bronchitis and pericarditis. In all these the suffering of the muscular tissue in the first stage has been recognised, but the effects of inflammation in the advanced condition had been neglected. In bronchitis it is a question how far the paralysis of the circular fibres of the bronchial tubes, may account for the accumulation in those tubes which is so commonly followed by asphyxia, in cases of bad catarrhal fever. In such cases we often see the patients dying from the effects of the accumulation in the lung, although there is no remarkable general prostration, and the individuals possess a considerable degree of muscular strength, so far as the system of animal life is concerned. Again, it might be inquired, how far, in dilatation of the bronchial tube, this condition may have existed. All writers seem to have acknowledged that Laennec's explanation of this occurrence is imperfect and unsatisfactory. Lastly, in cases of pericarditis, this principle (if admitted) would serve to explain the fatal termination of the disease. How accurately do the symptoms of the advanced stage of pericarditis, the syncope, the weakness, the failure of the pulse, correspond with a more or less paralysed condition of the heart? How singularly do the phenomena of the first stage correspond with the increase of innervation which we know to be the first effect of inflammation of the muscular structure? The same principle would serve to explain the supervention of active aneurism on the advanced stages of pericarditis. In the weakened state of the heart it yields to the pressure of the blood, and by degrees its cavities become distended. On the hydrostatic principle the force of this distension must be every moment increasing, and, of course, the progress of the disease will be proportionally rapid. Now, suppose that the inflammatory process ceases; the muscular fibres of the heart recovered their tone, but they have an increased duty to perform; and from the well-known law in physiology their growth is increased. To dilatation is added hypertrophy, and thus active aneurism is established. This theory differed from that of Andral, who assumes that the hypertrophy takes place from the first, and omits the possibility of an intervening paralytic condition of the heart.

The last point to which Dr. Stokes referred, related to the phenomena of respiration in Laennec's emphysema. If we take two cases of disease of accumulation, as for instance empyema and dilatation of the air cells, and suppose that in one the chest yields *pari passu* with the enlargement of the lung, while in the other it is rigid and unyielding; it is plain that the physical conditions and signs must be different. This appears to afford an explanation of the feebleness of respiration in dilatation of the air cells. If the quantity of air in the lung be so great as to keep it forcibly distended even after expiration, it is obvious that on the next inspiratory effort, the volume of air which enters will be minus the expansion of the lung from its distending force. If this be true, and this cause be the principal source of the feebleness of respiration, it should follow, that if the chest yielded easily to the enlargement of the lung, the disease would occur without the characteristic sign; in other words, the feebleness of respiration would be more a measure of the compression of the lung than a direct sign of Laennec's emphysema. Dr. Stokes brought forward an illustrative case, and concluded by stating, that these observations and suggestions should be tested by future investigation.—*Dublin Journal of Med. and Chem. Sc. Sept.* 1835.

MATERIA MEDICA.

19. *Corigeen, or Irish Pearl Moss.*—This article, is at present, getting into such general use, and is so valuable an article of diet in many cases, that the following account of its dietetic properties, and mode of preparation, by J. Bass, Pharmaceutic chemist, cannot fail to interest our readers.

"This valuable moss, commonly known by the above names, has long been highly esteemed by the peasants on the western coast of Ireland as a dietetic remedy for various diseases; more especially for consumption, dysentery, rickets, scrofula, and affections of the kidneys and bladder. Dissolved by being boiled in water, it forms a thick jelly, more pure and agreeable than that produced from many other vegetables, and the jelly made from it is found to agree better with the stomach than any prepared from animal substances. A decoction of the moss, made by boiling half an ounce in a pint and a half of water, or milk, until reduced to a pint, is recommended as food for children affected with scrofulous or ricketty diseases, for such as are delicate and weakly, and for infants brought up by hand, or after weaning. As an article of diet for invalids generally, it is equal if not superior to arrow root, sago, and tapioca, being highly nutritious, bland, and easy of digestion.

"The corigeen appears to possess qualities similar to the Iceland moss, but without its unpleasant flavour, and the quantity of nutritious jelly it produces, is truly surprising.

"*Directions for using the moss medicinally.*—Steep a quarter of an ounce of this moss in cold water for a few minutes, then withdraw it, (shaking the water out of each sprig,) and boil it in a quart of new or unskimmed milk, until it attains the consistence of warm jelly—strain and sweeten it to the taste with white sugar or honey, or, if convenient, with candied Eryngo root; should milk disagree with the stomach, the same proportion of water may be used instead. The decoction made with milk is recommended for breakfast to consumptive patients; and that with water will be found a most agreeable kind of nourishment, taken at intervals during the day, the flavour being varied with lemon juice or peel, Seville orange juice, cinnamon, or wine of any sort most congenial to the palate.

"The decoction in water is also taken for the relief of cough, at any time in the course of the day, when it is troublesome; and it is, for this purpose, simply sweetened with honey.